Rev. prod. anim., 26 (3): 2014

The Cost of Chacuba Race at *Rescate de Sanguily* Genetics

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ABSTRACT

The costs of Chacuba breed management at Rescate de Sanguily Genetic Project in Camagüey, Cuba was assessed. The cost of kilogram per live weight was evaluated in two stages: pre-weaning and post-weaning. The methods used were analysis, synthesis, observation, and the monographic method. The first stage produced 158.83 kg/live weight (mean weight) for $ 1.21 (cost per kg); and the second, 334.77 kg/live weight for $ 1.77 (cost per kg). The production of Chacuba studs at the Genetic Project was efficient, productive and economical, as profits were higher than the cost of production.

Key Words: *Chacuba breed, cost, live weight, profit*

INTRODUCTION

Planas and Alvarez (2002) reported that Zebu and Cuban Creole cattle are the breeds that best adapt to our production conditions due to their high capacity to crossbreed with *Bos Taurus* breeds, and generate offspring suitable for the production of beef and milk, making them highly demanded in tropical areas.

The genetic breeding project implemented in Cuba since 1980 showed that the breed has been increasingly producing positive genetic gains. This trend guarantees certification of studs used nationally for artificial insemination programs, or natural mating to improve beef production efficiency.

Rico, Planas and López (1987) stated that the Charolaise breed is precocious, has a feed conversion with a high growth rate when grazing, and increased carcass yields, which has stimulated its used for crossbreeding in other parts of the world.

The results achieved by crossing Cuban Charolaise bulls with Zebu cows, and their adaptation to tropical environments, have made Charolaise the most suitable breed due to its high growth rate, high fertility, carcass yields and low incidence of dystocic calving in the country (less than 2 %).

The study of costs has the purpose of providing enough relevant information for decision making in terms of strategic planning by the enterprise (Chambergo, 2011).

The working goal was to assess the costs of Chacuba under Rescate de Sanguily Genetic Enterprise´s production conditions.

MATERIALS AND METHODS

The research was done at *Rescate de Sanguily* Genetic Enterprise, in Jimaguayú, on the road to Santa Cruz del Sur, km 18, Camagüey, Cuba.

All accounting information was collected from the Accounting Department of the Enterprise, particularly, each growth stage (pre-weaning), and development (post-weaning) of Chacuba.

The information collected for analysis comprised 0-18 months, according to the breeding technology for Chacuba at the site.

The methods used from Trujillo *et al.* (2010) were analysis, synthesis, and observation (visual review of the animals´ physical state, facilities, pastures, and overall handling and care by the staff in all the production units). The monographic method was used only in the case of this unit.

To calculate the costs in every stage, the following procedure was used,

Cost of every stage = $\sum$ expenses in every stage/ no. of animals in every stage.

The number of animals in each stage was taken according to Herd Movement in all of them.

The structure of expenses was determined according to its total, and each expense´s percent was based on different concepts.

To calculate the cost of beef kg of live weight (PV) and the profits achieved in every stage and at the end, the following procedure was used,

Cost of kg / PV for each stage = $\sum$ of expenses / PV in each stage

Intake = PV / animal X Sales price kg/PV

Profit = Income – Animal cost

Cost-effectiveness = Overall profit in the stage / Overall cost in the stage X 100

RESULTS AND DISCUSSION

Twenty years ago, Cuba planned to crossbreed $^{5}/_{8}$ Charolaise and $^{3}/_{8}$ Zebu to produce a new breed known as Chacuba, whose results have since proven the suitability of the strategy. For instance, the growth and reproduction indicators have been and still are —despite the adversities national cattle raising faces— compared to the levels set up by the National Genetics Commission (DNG), and better than the specialized breeds in the country (Rodríguez and Guerra, 2003).

The category production cost is important, and along with the expenses, it shows their rational use. Accordingly, the production of Chacuba studs for national artificial insemination facilities and natural mating is accomplished.

It must be highlighted that the costs during the first growth stage of Chacuba was $ 189.50, originated by all the resources allotted for breeding and exploitation, which coincides with Rincón (2011), who defined cost structure as an instrument used to include the organization´s success inside the production department and its multiple applications, speeding up suitable management to maximize enterprise profit.

Concerning the stage expenses, and according to the concepts, the highest amount corresponds to salaries, managing expenses, services received, social security, and feed stuffs (42.97; 17.78; 17.65; 5.85 and 5.71 %, respectively).

The first concept involves the incentive system applied, consisting of higher salaries to workers to stimulate achievements in every stage. As a result, animal and entrepreneurial, as well as productive and economic efficiencies are increased. The second concept has to do with the production process, where significant direct expenses are made in order to achieve efficient managing work. The third concept owes to the need for healthy animals in each stage to meet the mission of the enterprise and its influence to produce high quality animals (studs) for insemination centers, and beef and milk producing industries.

During the behavior test stage, information of Chacuba bulls comprising ages between 8 and 18 years, is provided, which defines all males that meet all parameters set by evaluators for use as studs.

The period´s cost per animal was $ 564.78, according to Chambergo (2011), who said that the single cost procedure is a common denominator to compare the relation between the overall expenses and the production volume.

The largest amount of expenses corresponds to salary, managing expenses, feeds, social security, vacation and depreciation (47.01; 13.13; 10.49; 6.41; 4.27 and 4.26 %, respectively), according to Meléndez (2012), who said that the value of set expenses is not dependent on the number of items sold or purchased. It is opposite to the behavior of variable expenses, whose value and quantity are increased or decreased, depending on the number of production units.

This is a critical stage to achieve the goals of the enterprise under evaluation. The expenses for feedstuff use were increased, regarding the previous stage, because more feedstuffs were needed to achieve the expected goal.

The managing expenses decreased in comparison with the previous stage, mainly motivated by specialization of the unit, which demanded less direct and indirect expenses concerning managing and business management.
In this stage the animals discarded during the behavioral assessing test are sold to trading companies, the cooperatives, and individual farmers, to improve the quality of their herds, according to their goals.

At the first stage, a weight of 158.83 kg/PV was achieved, which was below reports by Planas and Álvarez (2002), that weight at weaning may be over 200 kg at 7 months of age, when the cow has plenty of feed.

It may be inferred then that this difference is motivated by droughts and pasture shortages the enterprise underwent during the research period. Feeding was not only based on grass, commercial feeds were also used, which contributed to reach the expected weight.

Upon analyzing the second stage (behavioral assessing test), the cost of kilogram was $ 1.77, meaning that the profitability of kg/live weight was $ 1.43, for 334.77 kg of final weight at the stage, less than reports by Planas and Álvarez (2002) stating that the mean weight in the late 18 months, was higher than 350 kg . Accordingly, Rodríguez *et al.* (2005) reported values between

350 and 400 kg, provided that feeding and handling conditions are favorable; the same as Ceró *et al.* (2011), who claimed 347.1 kg of mean weight. It is then inferred that handling, and especially man´s work, is remarkable in this entity, because the results do not differ from the reports in numbers.

CONCLUSIONS

Producing Chacuba studs is efficient and productive at *Rescate de Sanguily* Genetics Project, with profits over the production costs.

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Received: 12-6-2014
Accepted: 21-6-2014

Table 1. Evaluation of expenses at the first stage (pre-weaning) 0-7 months, at San Diego Unit

Concept	Amount ($)	(%)
Molasses	239.63	0.25
Feed	5 394.65	5.71
Medications	901.45	0.95
Other materials	1 231.28	1.3
Barb wire	53.47	0.05
Food supplies	9.55	0.01
Fuel	0	0
Salary	40 541.17	42.97
Social security	5 525.29	5.85
Vacation	3 695.2	3.91
Services received	16 650.09	17.65
Diets	586.36	0.62
Managing expenses	16 774.09	17.78
Depreciation	1 099.79	1.16
Workshop	86.21	0.09
Indirect expenses	1 545.5	1.63
Overall expenses	94 333.73	100
Cost x animal	189.5	-

Table 2. Evaluation of expenses at the second stage (pot-weaning) (behavior test) 0-18 months. El Roble Unit

Concept	Amount ($)	(%)
Molasses	365.41	0.4
Feed	9 486.43	10.49
Medications	1 555.2	1.72
Other materials	4 441.76	4.91
Other foodstuffs	1 920.5	2.12
Food supplies	15.5	0.01
Fuel	28.47	0.03
Salary	42 490.01	47.01
Social security	5 794.01	6.41
Vacation	3 862.35	4.27
Services received	1 683.54	1.86
Diets	920.15	1.01
Managing expenses	11 872.35	13.13
Depreciation	3 850.22	4.26
Workshop	110.4	0.12
Barb wire	949.2	1.05
Indirect expenses	1 020.5	1.12
Overall expenses	90 366.0	100
Cost x animal	564.78	-

Table 3. Evaluation of costs and profits per live weight kg for each stage

Concepts	UM	First stage 0-7 months	Second stage 8-18 months
Overall costs	$	192.59	594.84
Final weight at the stage	kg	158.83	334.77
Cost kg/PV	$	1.21	1.77
Sales price kg/PV	$	3.2	3.2
Profits kg/PV	$	1.99	1.43
Cost-effectiveness	%	164	80